

## AMENDMENTS

### In the Claims:

2 Please amend the claims as follows:

1. (Amended) A composition comprising a first and a second nucleic acid probe, said first probe hybridizing with an ABL nucleic acid flanking sequence and said second probe hybridizing with a BCR nucleic acid flanking sequence, said flanking sequences [method of detecting a structural chromosomal aberration comprising:

- Sub  
D1
- (a) preparing a plurality of nucleic acid probes each capable of hybridizing with a separate nucleic acid flanking sequence] brought together by a chromosomal [the chromosome] aberration];
- (b) contacting the probes with chromatin under conditions of appropriate stringency to allow hybridization of the probes to sequences homologous with the probe sequences; and
- (c) detecting the presence of the probes].
- D1

2. (Amended) The composition [method of detecting a chromosomal aberration] of claim 1 wherein the probes are labeled.

Sub  
E2

3. (Amended) The composition [method of detecting a chromosomal aberration] of claim 2 wherein each probe label is distinct from the other.

4. (Amended) The composition ~~[method of detecting a chromosomal aberration]~~ of claim 3 wherein the probes ~~[are further defined as]~~ hybridize to sequences that are at least approximately 800 kb apart in the aberrant chromosome.

5. (Amended) The composition ~~[method of detecting a chromosomal aberration]~~ of claim 4 wherein the labels comprise fluorescent labels.

6. (Amended) The composition ~~[method of detecting a chromosomal aberration]~~ of claim 4 wherein the fluorescent labels are ~~[microscopically distinct]~~ distinguishable under a microscope as different colors.

7. (Amended) The composition ~~[method of detecting a chromosomal aberration]~~ of claim 6 wherein the fluorescent labels comprise digoxigenin-11-dUTP and biotin-11-dUTP.

8. (Amended) The composition ~~[method of detecting a chromosomal aberration]~~ of claim 1 wherein the ~~[chromatin probe contacts occur]~~ probes hybridize with chromosomal DNA in situ in cells.

9. (Amended) The composition ~~[method of detecting a chromosomal aberration]~~ of claim 8 wherein the cells comprise those in interphase of mitotic division.

8 10. (Amended) The composition [method of detecting a chromosomal aberration] of claim 9 wherein the probes after hybridization are juxtaposed [in interphase] as doublets if a chromosomal aberration is present.

11. (Amended) The composition [method of detecting a chromosomal aberration] of claim 10 wherein the chromosomal aberration is further defined as comprising a translocation.

12. (Amended) The composition [method of detecting a chromosomal aberration] of claim 11 wherein the translocation is formed by breakpoints which occur on the long arms of human chromosomes No. 9 and No. 22.

13. (Amended) The composition [method of detecting a chromosomal aberration] of claim 12 wherein the translocation breakpoints are further defined as occurring at the locations designated t(9;22) (q11;q34).

14. (Amended) The composition [method of detecting a chromosomal aberration] of claim 13 wherein the translocation breakpoints are further defined to occur in the BCR and ABL genes respectively, and a fusion gene is formed by the translocation, and said fusion gene comprises portions of the BCR and ABL genes.

15. (Amended) The composition [method of detecting a chromosomal aberration] of claim 14 wherein the fusion gene [is] encodes a protein designated as p190.

16. (Amended) The composition [method of detecting a chromosomal aberration] of claim 10 wherein the probes consist of those selected from probes designated PEM12, c-H-abl and MSB-1.

14 17. (Amended) The composition [method of detecting a chromosomal aberration] of claim 8 wherein the cells comprise a sample[s] of human tissue[s].

15 18. (Amended) The composition [method of detecting a chromosomal aberration] of claim 17 wherein the human tissue sample[s] comprises peripheral blood.

16 19. (Amended) The composition [method of detecting a chromosomal aberration] of claim 17 wherein the human tissue sample[s] comprises bone marrow.

17 20. (Amended) The composition [method of detecting a chromosomal aberration] of claim 8 wherein the cells comprise a sample of cultured cells.

24. (Amended) The genetic probe of claim 21 wherein the probe comprises [the designation] PEM12.

25. (Amended) The genetic probe of claim 22 wherein the probe comprises [designation] MSB-1.

26. (Amended) The genetic probe of claim 23 wherein the probe comprises [designation]  
c-H-abl.

Sub E7  
27. (Amended) The composition [method of detecting a chromosomal aberration] of  
claim 1 wherein the first and second [plurality of] probes comprise c-H-abl and MSB-1,  
**PEM12 and c-H-abl**.

28. (Amended) The composition [method of detecting chromosomal aberrations] of  
claim 1 [27] wherein the first and second probes comprise c-H-abl and PEM12 [a first pair  
comprises MSB-1 and c-H-abl, and a second pair comprises PEM12 and c-H-abl].

29. (Amended) A kit for the detection of chromosomal aberrations comprising at least two  
genetic probes selected from claims 21, 22 and 23, and [appropriate controls] a control, each in  
separate containers.

Please add the following new claims:

Sub E7  
31. (New) The composition of claim 14 wherein the fusion gene encodes either of two  
proteins designated as p190 and p210.

Sub E9  
32. (New) The composition of claim 31 wherein the presence of said fusion gene is  
diagnostic for acute lymphocytic leukemia (ALL).